AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Previously presented) A computer-implemented method for soliciting a sub-population of a population, comprising:

employing a computer-implemented component to identify the sub-population to solicit and a non-solicited sub-population by using a computer-implemented decision theoretic model, the decision theoretic model constructed to maximize an expected increase in profits;

setting a solicitation variable to a first value for each of a plurality of members of the solicitation sub-population and to a second value for each of a plurality of members of the non-solicitation sub-population;

soliciting the sub-population identified to solicit; and

setting a purchase variable to a first value for each of the plurality of members of the solicitation and the non-solicitation sub-population that made a purchase and to a second value for each of the plurality of members of the solicitation and the non-solicitation sub-populations that did not make the purchase.

- 2. (Previously presented) The method of claim 1, wherein using the computer-implemented decision theoretic model comprises using a decision tree, the decision tree having a plurality of paths from a root node to a plurality of leaf nodes, each of the plurality of paths having a split on a solicitation variable having a first value corresponding to solicitation and a second value corresponding to non-solicitation.
- 3. (Original) The method of claim 2, wherein the decision tree is constructed such that the split on the solicitation variable of each of the plurality of paths is a last split.
- 4. (Original) The method of claim 2, wherein the decision tree is constructed such that the split on the solicitation variable of each of the plurality of paths is a first split.

- 5. (Original) The method of claim 2, wherein each of the plurality of leaf nodes provides a value for a probability conditional on at least a purchase variable having a first value corresponding to purchase and a second value corresponding to non-purchase.
- 6. (Previously presented) The method of claim 2, wherein identifying the sub-population to solicit comprises computer-implemented acts of:

constructing the decision tree from a sample of the population using a predetermined scoring criterion, each of the plurality of leaf nodes of the tree providing a value for a probability conditional on at least a purchase variable; and,

applying the decision tree against the population to identify the sub-population to solicit to maximize the expected increase in profits.

- 7. (Previously presented) The method of claim 6, wherein identifying the sub-population to solicit further initially comprises performing an experiment using a sample of the population to obtain values for the sample of the population for each of the solicitation variable and a purchase variable, the purchase variable having a first value corresponding to purchase and a second value corresponding to non-purchase.
- 8. (Original) The method of claim 1, wherein soliciting the sub-population identified comprises mailing a solicitation to each of a plurality of members of the sub-population.
- 9. (Original) The method of claim 1, wherein soliciting the sub-population identified comprises e-mailing a solicitation to each of a plurality of members of the sub-population.
- 10. (Original) The method of claim 1, wherein soliciting the sub-population identified comprises calling each of a plurality of members of the sub-population.

11. (Previously presented) A computer-implemented method for constructing a decision theoretic model to identify a sub-population of a population to solicit to maximize an expected increase in profits, comprising:

using a sample of the population to obtain values for the sample of the population for each of a solicitation variable and a purchase variable, the solicitation variable having a first value corresponding to solicitation and a second value corresponding to non-solicitation, and the purchase variable having a first value corresponding to purchase and a second value corresponding to non-purchase;

dividing the sample of the population into a non-solicitation group and a solicitation group;

setting the solicitation variable to the first value for each of a plurality of members of the solicitation group and to the second value for each of a plurality of members of the non-solicitation group;

soliciting the solicitation group;

setting the purchase variable to the first value for each of the plurality of members of the solicitation and the non-solicitation groups that made a purchase and to the second value for each of the plurality of members of the solicitation and the non-solicitation groups that did not make the purchase;

utilizing a computer-implemented component to construct a decision tree as the decision theoretic model from the sample using a predetermined scoring criterion, the decision tree having a plurality of paths from a root node to a plurality of leaf nodes, each of the plurality of paths having a split on the solicitation variable, and each of the plurality of leaf nodes providing a value for a probability conditional on at least the purchase variable; and,

applying the decision tree against the population to identify the sub-population to solicit to maximize the expected increase in profits.

12. (Cancelled)

13. (Previously presented) The computer-implemented method of claim 11, wherein construction of the decision tree comprises using a greedy approach.

- 14. (Previously presented) The computer-implemented method of claim 11, wherein the predetermined scoring criterion is a holdout criterion.
- 15. (Previously presented) The computer-implemented method of claim 11, wherein the predetermined scoring criterion is a cross-validation holdout criterion.
- 16. (Previously presented) The computer-implemented method of claim 11, wherein the predetermined scoring criterion is a marginal likelihood criterion.
- 17. (Previously presented) The computer-implemented method of claim 11, wherein the predetermined scoring criterion is an adjusted marginal likelihood criterion.
- 18. (Previously presented) The computer-implemented method of claim 11, wherein the split on the solicitation variable of each of the plurality of paths is a last split.
- 19. (Previously presented) The computer-implemented method of claim 18, wherein constructing the decision tree comprises: initializing the decision tree with an initial single leaf node as the root node;

using the greedy approach to construct the decision tree with no splits on the solicitation variable, the decision tree after construction using the greedy approach having a plurality of interim leaf nodes; and,

performing a split on the solicitation variable at each of the plurality of interim leaf nodes to generate the plurality of leaf nodes.

20. (Previously presented) The computer-implemented method of claim 11, wherein the split on the solicitation variable of each of the plurality of paths is a first split at the root node.

21. (Previously presented) The computer-implemented method of claim 20, wherein constructing the decision tree comprises:

initializing the decision tree with the first split at the root node on the solicitation variable; and,

using a greedy approach to finish constructing the decision tree.

- 22. (Previously presented) The computer-implemented method of claim 11, further comprising soliciting the sub-population identified.
- 23. (Previously presented) The computer-implemented method of claim 11, wherein the method is performed by execution of a computer program by a processor from a computer-readable medium.
- 24. (Previously presented) A computer-implemented method for constructing a decision theoretic model to identify a sub-population of a population to solicit and a non-solicited sub-population to maximize an expected increase in profits, comprising:

using a sample of the population to obtain values for the sample of the population for each of a solicitation variable and a purchase variable, the solicitation variable having a first value corresponding to solicitation and a second value corresponding to non-solicitation, and the purchase variable having a first value corresponding to purchase and a second value corresponding to non-purchase;

utilizing a computer implemented module for constructing a decision tree as the decision theoretic model from the sample using a greedy approach and a marginal likelihood scoring criterion, the decision tree having a plurality of paths from a root node to a plurality of leaf nodes, each of the plurality of paths having a last split on the solicitation variable, and each of the plurality of leaf nodes providing a value for a probability conditional on at least the purchase variable;

applying the decision tree against the population to identify the sub-population to solicit to maximize the expected increase in profits;

setting a solicitation variable to the first value for each of a plurality of members of the solicitation sub-population and to a second value for each of a plurality of members of the non-solicitation sub-population; and

setting a purchase variable to the first value for each of the plurality of members of the solicitation and the non-solicitation sub-populations that made a purchase and to a second value for each of the plurality of members of the solicitation and the non-solicitation sub-populations that did not make the purchase.

25. (Previously presented) The computer-implemented method of claim 24 further comprising:

dividing the sample of the population into a non-solicitation group and a solicitation group;

setting the solicitation variable to the first value for each of a plurality of members of the solicitation group and to the second value for each of a plurality of members of the non-solicitation group;

soliciting the solicitation group; and,

setting the purchase variable to the first value for each of the plurality of members of the solicitation and the non-solicitation groups that made a purchase and to the second value for each of the plurality of members of the solicitation and the non-solicitation groups that did not make the purchase.

- 26. (Original) The method of claim 24, further comprising soliciting the sub-population identified by one of: calling each of a plurality of members of the sub-population, mailing a solicitation to each of the plurality of members of the sub-population, and e-mailing the solicitation to each of the plurality of members of the sub-population.
- 27. (Previously presented) The computer-implemented method of claim 24, wherein the method is performed by execution of a computer program by a processor from a computer-readable medium.

- 28. (Previously presented) A computer implemented system for improving profits associated with advertising, comprising:
 - a module that receives input regarding a population;
- a decision theoretic model that determines a subset of the population to solicit with the advertising and a non-solicited sub-population so as to maximize an expected increase in profits from the solicitation;

means for setting a solicitation variable to a first value for each of a plurality of members of the solicitation sub-population and to a second value for each of a plurality of members of the non-solicitation sub-population; and

means for setting a purchase variable to a first value for each of the plurality of members of the solicitation and the non-solicitation sub-populations that made a purchase and to a second value for each of the plurality of members of the solicitation and the non-solicitation sub-populations that did not make the purchase.

- 29. (Previously presented) The system of claim 28, wherein the decision theoretic model comprises a decision tree, the decision tree includes a plurality of paths from a root node to a plurality of leaf nodes, each of the plurality of paths having a split on the solicitation variable having a first value corresponding to solicitation and a second value corresponding to non-solicitation.
- 30. (Previously presented) The system of claim 29, wherein each of the plurality of leaf nodes provides a value for a probability conditional on at least the purchase variable having a first value corresponding to purchase and a second value corresponding to non-purchase.